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News Releases

Tackling Common Problems: NASA Scientists and NSMRL Researchers

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From Naval Submarine Medical Research Laboratory Public Affairs



(Left to right) Lt. Cmdr. Jay Haran, Lt. Christopher Rodeheffer, Dr. Benton Lawson from NSMRL and Dr. Dave Alexander, NASA flight surgeon. The three Naval Submarine Medical Research Laboratory researchers were invited to the National Aeronautics and Space Agency (NASA) Johnson Space Center to present the findings of a (NSMRL) study, May 17-19, 2017.

GROTON, CT. – A three person team from the Naval Submarine Medical Research Laboratory (NSMRL), traveled to the National Aeronautics and Space Agency (NASA) Johnson Space Center (JSC), Houston, Texas, to discuss current research regarding the relationship between carbon dioxide (CO₂) levels and performance in enclosed working and living environments, May 17-19, 2017.

Lt. Cmdr. Jay Haran and Lt. Christopher Rodeheffer principal investigators for the Warfighter Performance Department; and Dr. Benton Lawson, Technical Director, presented results from an NSMRL study examining the impact of low-to-moderate levels of ambient carbon dioxide (CO₂) on cognitive performance to the members of NASA's Human Research Program (HRP) Risk Board. This group performs human risk assessments for the human system for spaceflight missions. The board facilitates the integration of human research, medical operations, occupational surveillance, systems engineering and many other disciplines in a comprehensive review of the human system risks.

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The objective of the NSMRL study was to determine if the decision-making process of submariners was degraded by exposure to higher concentrations of CO₂ present during sea patrols. The results of the study detected no significant deficits in the cognitive performance of submariners exposed to elevated low-to-moderate levels of ambient CO₂. These findings were in agreement with a NASA study that had similar results.

“This meeting provided an opportunity for NASA and NSMRL scientists and researchers to come together to discuss the risks, needs, and requirements in our shared research areas,” said Haran.

Having the opportunity to meet with the team of NASA scientists to discuss our research, as well as theirs, was really insightful and a once-in-a-lifetime opportunity,” said Rodeheffer.

The two-day meeting at NASA included several briefs from NASA scientists, as well as a meeting to discuss mutual research interests. While NSMRL and NASA are two very different organizations, they share common research interests including: sleep, fatigue, high workload, artificial lighting, moods under altered shifts, and the effects of isolation and confinement related to long-duration missions.

NSMRL provides innovative human-centric research for the Submarine Force. NSMRL takes the lead in undersea human factors, sensory sciences and operational medicine, delivers timely evidenced-based healthcare solutions. Conveniently located at the Submarine Base New London, Groton, Connecticut, NSMRL researchers have access to three submarine squadrons, the Navy Submarine School, the Naval Submarine Support Facility, and the Naval Undersea Medical Institute. The laboratory is staffed by a diverse group of psychologists, audiologists, physicians, physiologists, and electrical, biomedical and nuclear engineers. Areas of research include submariner wellness, psychological fitness, shipboard health and performance, underwater bioeffects, submarine survival and escape, and hearing protection and performance.

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